Group: Spawn
Angel Samora, Ragir Zebari
CS481-01

CS481-Assignment2
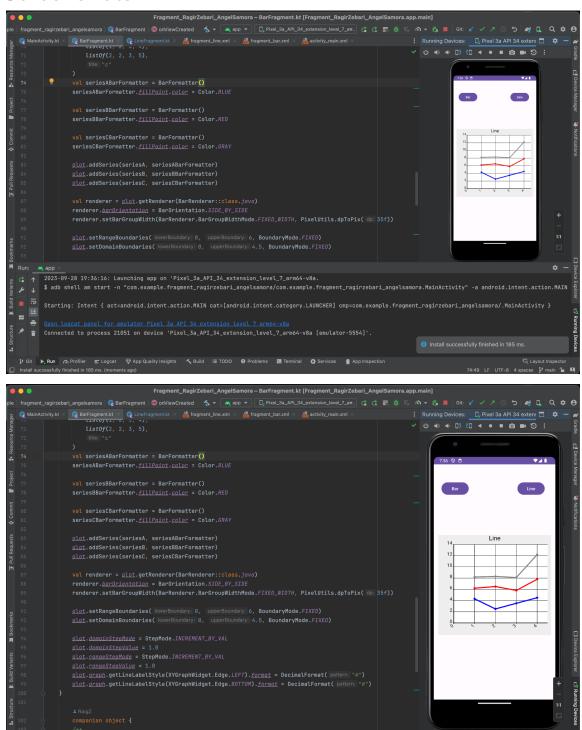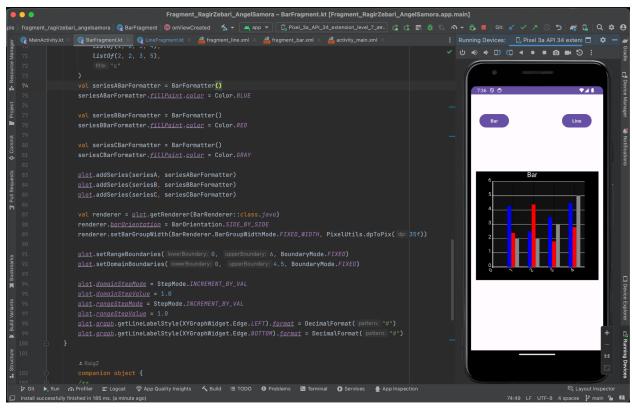
Screenshots

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Video

https://drive.google.com/file/d/1t6z8myfoP86O1RTXcHFbORDvUi0U8eyF/view?usp=drive_link

Source Code

MainActivity.kt

```kotlin
package com.example.fragment_ragirzebari_angelsamora

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button

public class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val barFragment = BarFragment()
        val lineFragment = LineFragment()
        supportFragmentManager.beginTransaction().apply {
            replace(R.id.fContainer,lineFragment)
            commit()
        }
        findViewById<Button>(R.id.bBar).setOnClickListener {
            supportFragmentManager.beginTransaction().apply {
                replace(R.id.fContainer,barFragment)
                commit()
            }
        }
        findViewById<Button>(R.id.bLine).setOnClickListener {
            supportFragmentManager.beginTransaction().apply {
                replace(R.id.fContainer,lineFragment)
                commit()
            }
        }
    }
}
```

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/bBar"
```

```xml
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/bar"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.081"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.076" />

    <Button
        android:id="@+id/bLine"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/line"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.887"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.076" />

    <androidx.fragment.app.FragmentContainerView
        android:id="@+id/fContainer"
        android:name="com.example.fragment_ragirzebari_angelsamora.LineFragment"
        android:layout_width="366dp"
        android:layout_height="342dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />


</androidx.constraintlayout.widget.ConstraintLayout>
```

BarFragment.kt

```kotlin
package com.example.fragment_ragirzebari_angelsamora

import android.graphics.Color
import android.os.Bundle
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import androidx.fragment.app.Fragment
import com.androidplot.util.PixelUtils
import com.androidplot.xy.BarFormatter
import com.androidplot.xy.BarRenderer
import com.androidplot.xy.BarRenderer.BarOrientation
```

```kotlin
import com.androidplot.xy.BoundaryMode
import com.androidplot.xy.SimpleXYSeries
import com.androidplot.xy.StepMode
import com.androidplot.xy.XYGraphWidget
import com.androidplot.xy.XYPlot
import com.androidplot.xy.XYSeries
import java.text.DecimalFormat

// TODO: Rename parameter arguments, choose names that match
// the fragment initialization parameters, e.g. ARG_ITEM_NUMBER
private const val ARG_PARAM1 = "param1"
private const val ARG_PARAM2 = "param2"

/**
 * A simple [Fragment] subclass.
 * Use the [BarFragment.newInstance] factory method to
 * create an instance of this fragment.
 */
class BarFragment : Fragment() {
    // TODO: Rename and change types of parameters
    private var param1: String? = null
    private var param2: String? = null
    private lateinit var plot: XYPlot

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        arguments?.let {
            param1 = it.getString(ARG_PARAM1)
            param2 = it.getString(ARG_PARAM2)
        }
    }

    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        val view = inflater.inflate(R.layout.fragment_bar, container, false)
        plot = view.findViewById(R.id.plotBar)
        return view
    }

    override fun onViewCreated(view: View, savedInstanceState: Bundle?) {
        super.onViewCreated(view, savedInstanceState)

        val seriesA: XYSeries = SimpleXYSeries(
            listOf(1, 2, 3, 4),
            listOf(4.3, 2.5, 3.5, 4.5),
            "a"
        )
```

```kotlin
        val seriesB: XYSeries = SimpleXYSeries(
            listOf(1, 2, 3, 4),
            listOf(2.4, 4.4, 1.8, 2.8),
            "b"
        )

        val seriesC: XYSeries = SimpleXYSeries(
            listOf(1, 2, 3, 4),
            listOf(2, 2, 3, 5),
            "c"
        )
        val seriesABarFormatter = BarFormatter()
        seriesABarFormatter.fillPaint.color = Color.BLUE

        val seriesBBarFormatter = BarFormatter()
        seriesBBarFormatter.fillPaint.color = Color.RED

        val seriesCBarFormatter = BarFormatter()
        seriesCBarFormatter.fillPaint.color = Color.GRAY

        plot.addSeries(seriesA, seriesABarFormatter)
        plot.addSeries(seriesB, seriesBBarFormatter)
        plot.addSeries(seriesC, seriesCBarFormatter)

        val renderer = plot.getRenderer(BarRenderer::class.java)
        renderer.barOrientation = BarOrientation.SIDE_BY_SIDE
        renderer.setBarGroupWidth(BarRenderer.BarGroupWidthMode.FIXED_WIDTH,
PixelUtils.dpToPix(35f))

        plot.setRangeBoundaries(0, 6, BoundaryMode.FIXED)
        plot.setDomainBoundaries(0, 4.5, BoundaryMode.FIXED)

        plot.domainStepMode = StepMode.INCREMENT_BY_VAL
        plot.domainStepValue = 1.0
        plot.rangeStepMode = StepMode.INCREMENT_BY_VAL
        plot.rangeStepValue = 1.0
        plot.graph.getLineLabelStyle(XYGraphWidget.Edge.LEFT).format =
DecimalFormat("#")
        plot.graph.getLineLabelStyle(XYGraphWidget.Edge.BOTTOM).format =
DecimalFormat("#")
    }

    companion object {
    /**
     * Use this factory method to create a new instance of
     * this fragment using the provided parameters.
     *
     * @param param1 Parameter 1.
```

```
         * @param param2 Parameter 2.
         * @return A new instance of fragment BarFragment.
         */
        // TODO: Rename and change types and number of parameters
        @JvmStatic
        fun newInstance(param1: String, param2: String) =
            BarFragment().apply {
                arguments = Bundle().apply {
                    putString(ARG_PARAM1, param1)
                    putString(ARG_PARAM2, param2)
                }
            }
    }
}
```

fragment_bar.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:ap="http://schemas.android.com/apk/res-auto"
    tools:context=".BarFragment">

    <com.androidplot.xy.XYPlot
        android:id="@+id/plotBar"
        style="@style/APDefacto.Dark"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent"
        ap:title="Bar"
        ap:marginBottom="-30dp"
        ap:marginTop="20dp"
        ap:paddingRight="30dp"
        ap:lineLabels="left|bottom"
        ap:domainLineColor="@color/ap_black"
        ap:rangeLineColor="@color/white" />

</FrameLayout>
```

LineFragment.kt

```kotlin
package com.example.fragment_ragirzebari_angelsamora

import android.graphics.Color
import android.os.Bundle
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import androidx.fragment.app.Fragment
import com.androidplot.xy.BoundaryMode
import com.androidplot.xy.LineAndPointFormatter
```

```kotlin
import com.androidplot.xy.SimpleXYSeries
import com.androidplot.xy.StepMode
import com.androidplot.xy.XYGraphWidget
import com.androidplot.xy.XYPlot
import com.androidplot.xy.XYSeries
import java.text.DecimalFormat

// TODO: Rename parameter arguments, choose names that match
// the fragment initialization parameters, e.g. ARG_ITEM_NUMBER
private const val ARG_PARAM1 = "param1"
private const val ARG_PARAM2 = "param2"

/**
 * A simple [Fragment] subclass.
 * Use the [LineFragment.newInstance] factory method to
 * create an instance of this fragment.
 */
class LineFragment : Fragment() {
    // TODO: Rename and change types of parameters
    private var param1: String? = null
    private var param2: String? = null
    private lateinit var plot: XYPlot

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        arguments?.let {
            param1 = it.getString(ARG_PARAM1)
            param2 = it.getString(ARG_PARAM2)
        }
    }

    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        // Inflate the layout for this fragment
        val view = inflater.inflate(R.layout.fragment_line, container, false)
        plot = view.findViewById(R.id.plotLine)
        return view
    }

    override fun onViewCreated(view: View, savedInstanceState: Bundle?) {
        super.onViewCreated(view, savedInstanceState)

        val seriesA: XYSeries = SimpleXYSeries(
            listOf(1, 2, 3, 4),
            listOf(4.3, 2.5, 3.5, 4.5),
            "a"
        )
```

```kotlin
        val seriesB: XYSeries = SimpleXYSeries(
            listOf(1, 2, 3, 4),
            listOf(6.2, 6.5, 5.8, 7.8),
            "b"
        )

        val seriesC: XYSeries = SimpleXYSeries(
            listOf(1, 2, 3, 4),
            listOf(8.2, 8.3, 8.1, 12.2),
            "c"
        )
        val seriesAFormatter = LineAndPointFormatter()
        seriesAFormatter.linePaint.color = Color.BLUE
        seriesAFormatter.vertexPaint.color = Color.BLUE
        seriesAFormatter.fillPaint.color = Color.TRANSPARENT
        seriesAFormatter.linePaint.strokeWidth = 10f
        seriesAFormatter.vertexPaint.strokeWidth = 20f

        val seriesBFormatter = LineAndPointFormatter()
        seriesBFormatter.linePaint.color = Color.RED
        seriesBFormatter.vertexPaint.color = Color.RED
        seriesBFormatter.fillPaint.color = Color.TRANSPARENT
        seriesBFormatter.linePaint.strokeWidth = 10f
        seriesBFormatter.vertexPaint.strokeWidth = 20f

        val seriesCFormatter = LineAndPointFormatter()
        seriesCFormatter.linePaint.color = Color.GRAY
        seriesCFormatter.vertexPaint.color = Color.GRAY
        seriesCFormatter.fillPaint.color = Color.TRANSPARENT
        seriesCFormatter.linePaint.strokeWidth = 10f
        seriesCFormatter.vertexPaint.strokeWidth = 20f

        plot.addSeries(seriesA, seriesAFormatter)
        plot.addSeries(seriesB, seriesBFormatter)
        plot.addSeries(seriesC, seriesCFormatter)

        plot.setRangeBoundaries(0, 14, BoundaryMode.FIXED)
        plot.setDomainBoundaries(0, 4.5, BoundaryMode.FIXED)
        plot.rangeStepMode = StepMode.INCREMENT_BY_VAL
        plot.rangeStepValue = 2.0
        plot.domainStepMode = StepMode.INCREMENT_BY_VAL
        plot.domainStepValue = 1.0
        plot.graph.getLineLabelStyle(XYGraphWidget.Edge.LEFT).format =
DecimalFormat("#")
        plot.graph.getLineLabelStyle(XYGraphWidget.Edge.BOTTOM).format =
DecimalFormat("#")
    }
```

```kotlin
    companion object {
        /**
         * Use this factory method to create a new instance of
         * this fragment using the provided parameters.
         *
         * @param param1 Parameter 1.
         * @param param2 Parameter 2.
         * @return A new instance of fragment LineFragment.
         */
        // TODO: Rename and change types and number of parameters
        @JvmStatic
        fun newInstance(param1: String, param2: String) =
            LineFragment().apply {
                arguments = Bundle().apply {
                    putString(ARG_PARAM1, param1)
                    putString(ARG_PARAM2, param2)
                }
            }
    }
}
```

fragment_line.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:ap="http://schemas.android.com/apk/res-auto"
    tools:context=".LineFragment">

    <com.androidplot.xy.XYPlot
        android:id="@+id/plotLine"
        style="@style/APDefacto.Light"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent"
        ap:title="Line"
        ap:marginBottom="-30dp"
        ap:marginTop="20dp"
        ap:domainLineColor="@color/ap_black"
        ap:rangeLineColor="@color/ap_black"
        ap:lineLabelTextColorTop="@color/ap_black"
        ap:gridBackgroundColor="@color/ap_white"
        ap:lineLabels="left|bottom" />

</FrameLayout>
```

build.gradle.kts (:app) dependencies

```kotlin
implementation("com.androidplot:androidplot-core:1.5.10")
```